
Name of the Project

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Abstract

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Acknowledgement

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1 Literature Review

The optimal scheduling of crude-oil operation addresses the scheduling of the uploading crude of incoming marine vessels to a refinery and the transfer of the crude from storage to charging tanks to the crude oil distillation units. Planning and scheduling of the flow of crude oil is a very important problem in petroleum refineries due to the potential realization of large cost saving and improved feeds.

According to different time representation concepts, crude-oil scheduling problem can be either formulated as continuous-time model or discrete-time model (Barres, 2013).

Table 1: Case 1 Data

Marine vessels	at_{mv} (day)	$v_{mv,cr}^{in}$ (kbbl)	c_{mv}^{wsea} (\$/day)	c_{mv}^{harb} (\$/day)
MV1	0	1000 (CR1)	5000	8000
MV2	4	1000 (CR2)	5000	8000
Storage tanks	v_{tk}^{min} (kbbl)	v_{tk}^{max} (kbbl)	$v_{tk,cr}^0$ (kbbl)	c_{tk}^{inv} (\$/kbbl/day)
ST1	0	1000	250 (CR1)	8
ST2	0	1000	750 (CR2)	8
Charging tanks	v_{tk}^{min} (kbbl)	v_{tk}^{max} (kbbl)	$v_{tk,cr}^0$ (kbbl)	c_{tk}^{inv} (\$/kbbl/day)
CT1	0	1000	500 (CR3)	5
CT2	0	1000	500 (CR4)	5
Tank compositions	$c_{tk,pr}^{min}$	$c_{tk,pr}^{min}$		
CT1	0.015	0.025		
CT2	0.045	0.055		
Crudes	$c_{cr,pr}$	p_{cr} (\$/bbl)		
CR1	0.01	1		
CR2	0.06	6		
CR3	0.02	2		
CR4	0.05	5		
Demand	$d_{ct}^{min} = d_{ct}^{max}$ (kbbl)			
CT1	1000			
CT2	1000			
Transfer flowrates (kbbl/day)	$r_{u,u'}^{min}$	$r_{u,u'}^{max}$		
MV→ST	0	500		
ST→CT	0	500		
CT→CD	50	500		
Distillations	nd	3	c^{chg} (\$)	50000
Horizon (day)	8			

Nomenclature

Sets

MV test

Bibliography

Barres, B. (2013). How to pick a graduate advisor. *Neuron*, 80(2):275 – 279.